3.6 CLIMATE-RELATED PHYSICAL RISKS

Case Study 2: Rising temperatures, changing rainfall – example of chronic physical risk

Important notice
This unit is part of a package of learning materials designed to support understanding of foundational concepts relating to climate-related financial disclosures. These learning materials do not constitute application or regulatory guidance for the preparation of climate-related financial disclosures and are not intended to represent legal or professional advice. We encourage you to seek your own professional advice to find out how the Corporations Act 2001 (Corporations Act) and other relevant laws may apply to you and your circumstances, as it is your responsibility to determine your obligations and comply with them.

The company featured in this case study is entirely fictional and presented for illustrative purposes only. It is not intended to represent any real business, past or present. Any resemblance to actual entities is purely coincidental. Different entities have different climate-related risks and opportunities, and so this scenario may not be relevant for your entity.

Key topics

- Climate-related physical risk
- Chronic physical risks for entities – long-term shifts in temperature and rainfall patterns
- Impacts on the operations and resilience of entities

Relevance for climate-related disclosures

This unit's case study will help you to understand how chronic physical risks, in this case rising average temperatures and shifting rainfall patterns, can impact entity operations and financial performance.

Overview

This unit explores a case study designed to illustrate key concepts related to climate-related physical risks, specifically chronic physical risks. It is a hypothetical example involving a fictional southern NSW broadacre farm, grounded in a real-world scenario, based on the latest climate science and observed challenges facing the agricultural sector in Australia.[1] It may give you practical insights into:

- identifying chronic physical risks
- assessing financial and operational impacts
- considering recovery and adaptation strategies.

Introduction

This case study may help you reflect on how similar chronic physical risks could affect the operations, supply chains, or financial performance of your entity. The scenario is intended to prompt consideration of potential vulnerabilities and resilience strategies. This scenario does not describe real events or a real entity but is grounded in realistic conditions experienced by agricultural producers.

Sector: Agriculture – crop production
Entity: Broadacre crop farming enterprise

Location: Southern New South Wales
Chronic climate risk type: Long-term temperature rise and decline in cool-season rainfall

What is the scenario?

Over the past decade, Waratah Plains Cropping Co., a broadacre crop production business in Southern New South Wales, has experienced increasingly variable rainfall and rising average temperatures. These chronic climate trends have gradually reduced soil moisture retention, shortened growing seasons, and increased the frequency of crop stress events.
The business has seen declining yields, with greater reliance on extra irrigation and soil conditioning. Shifts in rainfall timing have disrupted planting and harvesting schedules. These changes have required ongoing adjustments to crop selection, input use and farm management practices.

What are some potential business impacts?

Financial

- reduction in production and revenue
- costs associated with investment in new technologies

Operational

- increased reliance on irrigation due to reduced rainfall
- changes to planting and harvesting schedules

Physical

- shifts in viable crop types and varieties

What is the response strategy?

Waratah Plains Cropping Co. has begun investing in climate-resilient infrastructure and exploring alternative cropping strategies, but long-term financial and operational pressures remain.

Sources and explanatory notes

[1] Cool season rainfall has declined by around 9% since 1994 in the south-east of Australia. Regions in the south and east of Australia are likely to see an increase in the average duration of drought.

Bureau of Meteorology and CSIRO (2024) *State of the Climate 2024*, Government of Australia

Further insights into the conditions and challenges underpinning this case study can be found in reports from the Australian Government, Department of Agriculture (ABARES):

Hughes, N., Galeano, D., and Hatfield-Dodds, S. (2019) *The effects of drought and climate variability on Australian farms*, ABARES Insights 6

Hughes, N. and Gooday, P. (2021) *Climate change impacts and adaptation on Australian farms*, ABARES Insights 3